



Summer 1958

Volume I, Number 3

Columbia University **FORUM**

**A SPECIAL ISSUE ON
AMERICAN HIGHER EDUCATION 1958**



This special summer issue of the FORUM does not resemble its predecessors, and the magazine will resume its customary format and content with the Fall 1958 issue: a journal of fact and opinion written by Columbia University authors.

Columbia alumni will find in this special issue a report on American higher education in 1958, a report compiled and produced by the editors of fourteen prominent university publications in this country. One year in production, the essay draws on research done by other university editors in every part of the United States; the intention of all concerned was to present a timely panorama of the diversity, the promise, and the problems of America's colleges and universities at this moment. The report, in an identical format, has already been published by the magazines of 152 institutions of learning in this country and abroad and will reach a total of 1,400,000 readers, virtually all of them college alumni. The names of the institutions which cooperated in this publishing venture, as well as the names of those editorially responsible for it, are to be found at the back. Here, then, is a broad view, presented to those who are in the best position both to understand and to safeguard higher education in this country: its own alumni . . .

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A SPECIAL REPORT

AMERICAN HIGHER EDUCATION 1958

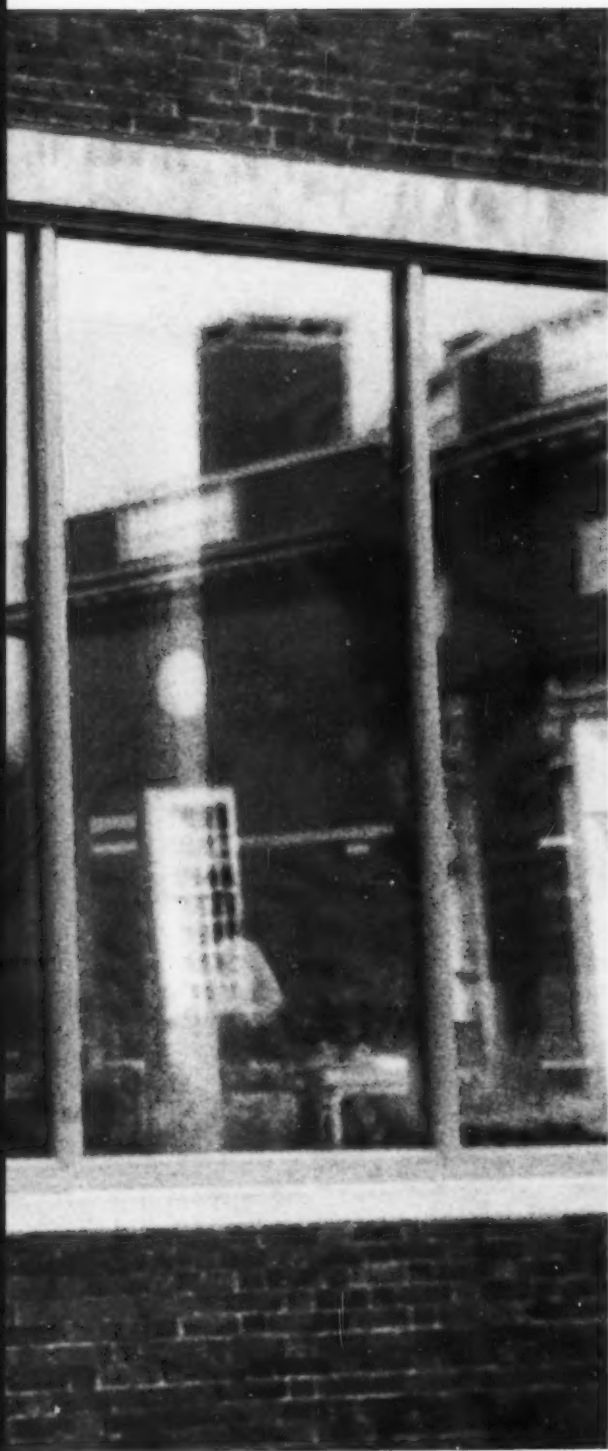
ITS PRESSING PROBLEMS AND NEEDS ARE
EXCEEDED ONLY BY ITS OPPORTUNITIES

THIS is a special report. It is published because the time has come for colleges and universities—and their alumni—to recognize and act upon some extraordinary challenges and opportunities.

Item: Three million, sixty-eight thousand young men and women are enrolled in America's colleges and universities this year—45 per cent more than were enrolled six years ago, although the number of young people in the eighteen-to-twenty-one age bracket has increased only 2 per cent in the same period. A decade hence, when colleges will feel the effects of the unprecedented birth rates of the mid-1940's, today's already-enormous enrollments will double.

Item: In the midst of planning to serve *more* students, higher education is faced with the problem of not losing sight of its *extraordinary* students. "What is going to happen to the genius or two in this crowd?" asked a professor at one big university this term, waving his hand at a seemingly endless line of students waiting to fill out forms at registra-





HIGHER education in America had its beginnings when the Puritans founded a college to train their ministers. Here, reflected in a modern library window, is the chapel spire at Harvard.

tion desks. "Heaven knows, if the free world ever needed to discover its geniuses, it needs to do so now." President Robert Gordon Sproul of the University of California puts it this way: "If we fail in our hold upon quality, the cherished American dream of universal education will degenerate into a nightmare."

Item: A college diploma is the *sine qua non* for almost any white-collar job nowadays, and nearly everybody wants one. In the scramble, a lot of students are going to college who cannot succeed there. At the Ohio State University, for instance, which is required by law to admit every Ohioan who owns a high-school diploma and is able to complete the entrance blanks, two thousand students flunked out last year. Nor is Ohio State's problem unique. The resultant waste of teaching talents, physical facilities, and money is shocking—to say nothing of the damage to young people's self-respect.

Item: The cost of educating a student is soaring. Like many others, Brown University is boosting its fees this spring: Brown students henceforth will pay an annual tuition bill of \$1,250. But it costs Brown \$2,300 to provide a year's instruction in return. The difference between charges and actual cost, says Brown's President Barnaby C. Keeney, "represents a kind of scholarship from the faculty. They pay for it out of their hides."

Item: The Educational Testing Service reports that lack of money keeps many of America's ablest high-school students from attending college—150,000 last year. The U. S. Office of Education found not long ago that even at public colleges and universities, where tuition rates are still nominal, a student needs around \$1,500 a year to get by.

Item: Non-monetary reasons are keeping many promising young people from college, also. The Social Science Research Council offers evidence that fewer than half of the students in the upper tenth of their high-school classes go on to college. In addition to lack of money, a major reason for this defection is "lack of motivation."

Item: At present rates, only one in eight college teachers can ever expect to earn more than \$7,500 a year. If colleges are to attract and hold competent teachers, says Devereux C. Josephs, chairman of the President's Committee on Education Beyond the High School, faculty salaries must be increased by at least

FROM its simple beginnings, American higher education has grown into 1,800 institutions of incredible diversity. At the right is but a sampling of their vast interests and activities.

50 per cent during the next five years. Such an increase would cost the colleges and universities around half a billion dollars a year.

Item: Some critics say that too many colleges and universities have been willing to accept—or, perhaps more accurately, have failed firmly to reject—certain tasks which have been offered to or thrust upon them, but which may not properly be the business of higher education at all. "The professor," said one college administrator recently, "should not be a carhop who answers every demanding horn. Educational institutions must not be hot-dog stands."

Item: The colleges and universities, some say, are not teaching what they ought to be teaching or are not teaching it effectively. "Where are the creative thinkers?" they ask. Have we, without quite realizing it, grown into a nation of gadgeteers, of tailfin technicians, and lost the art of basic thought? (And from all sides comes the worried reminder that the other side launched their earth satellites first.)

THESE are some of the problems—only some of them—which confront American higher education in 1958. Some of the problems are higher education's own offspring: some are products of the times.

But some are born of a fact that is the identifying strength of higher education in America: its adaptability to the free world's needs, and hence its diversity.

Indeed, so diverse is it—in organization, sponsorship, purpose, and philosophy—that perhaps it is fallacious to use the generalization, "American higher education," at all. It includes 320-year-old Harvard and the University of Southern Florida, which now is only on the drawing boards and will not open until 1960. The humanities research center at the University of Texas and the course in gunsmithing at Lassen Junior College in Susanville, California. Vassar and the U. S. Naval Academy. The University of California, with its forty-two thousand students, and Deep Springs Junior College, on the eastern side of the same state, with only nineteen.

Altogether there are more than 1,800 American institutions which offer "higher education," and no two of them are alike. Some are liberal-arts colleges, some are



UNIVERSITY OF NEW MEXICO

MILLS COLLEGE





DARTMOUTH COLLEGE



AMHERST COLLEGE



UNIVERSITY OF CALIFORNIA



DEEP SPRINGS JUNIOR COLLEGE



EMORY UNIVERSITY

UNIVERSITY OF KANSAS



WITH growth have come problems for the colleges and universities. One of the most pressing, today, is swelling enrollments. Already they are straining higher education's campuses and teaching resources. But the present large student population is only a fraction of the total expected in the next decade.



SMITH COLLEGE

vast universities, some specialize in such fields as law, agriculture, medicine, and engineering. Some are supported by taxation, some are affiliated with churches, some are independent in both organization and finance. Thus any generalization about American higher education will have its exceptions—including the one that all colleges and universities desperately need more money. (Among the 1,800, there may be one or two which don't.) In higher education's diversity—the result of its restlessness, its freedom, its geography, its competitiveness—lies a good deal of its strength.

AMERICAN higher education in 1958 is hardly what the Puritans envisioned when they founded the country's first college to train their ministers in 1636. For nearly two and a half centuries after that, the aim of America's colleges, most of them founded by churches, was limited: to teach young people the rudiments of philosophy, theology, the classical languages, and mathematics. Anyone who wanted a more extensive education had to go to Europe for it.

One break from tradition came in 1876, with the founding of the Johns Hopkins University. Here, for the first time, was an American institution with European standards of advanced study in the arts and sciences.

Other schools soon followed the Hopkins example. And with the advanced standards came an emphasis on research. No longer did American university scholars

In the flood of vast numbers of students, the colleges and universities are concerned that they not lose sight of the individuals in the crowd. They are also worried about costs: every extra student adds to their financial deficits.

HARVARD UNIVERSITY

simply pass along knowledge gained in Europe; they began to make significant contributions themselves.

Another spectacular change began at about the same time. With the growth of science, agriculture—until then a relatively simple art—became increasingly complex. In the 1850's a number of institutions were founded to train people for it, but most of them failed to survive.

In 1862, however, in the darkest hours of the Civil War, Abraham Lincoln signed the Morrill Land-Grant Act, offering each state public lands and support for at least one college to teach agriculture and the mechanic arts. Thus was the foundation laid for the U. S. state-university system. "In all the annals of republics," said Andrew D. White, the first president of one institution founded under the act, Cornell University, "there is no more significant utterance of confidence in national destiny, out from the midst of national calamity."

NOW there was no stopping American higher education's growth, or the growth of its diversity. Optimistically America moved into the 1900's, and higher education moved with it. More and more Americans wanted to go to college and were able to do so. Public and private institutions were established and expanded. Tax dollars by the millions were appropriated, and philanthropists like Rockefeller and Carnegie and Stanford vied to support education on a large scale. Able teachers, now being graduated in numbers by America's own universities, joined their staffs.

In the universities' graduate and professional schools, research flourished. It reached outward to explore the universe, the world, and the creatures that inhabit it. Scholars examined the past, enlarged and tended man's cultural heritage, and pressed their great twentieth-century search for the secrets of life and matter.

Participating in the exploration were thousands of young Americans, poor and rich. As students they were acquiring skills and sometimes even wisdom. And, with

their professors, they were building a uniquely American tradition of higher education which has continued to this day.

OUR aspirations, as a nation, have never been higher. Our need for educational excellence has never been greater. But never have the challenges been as sharp as they are in 1958.

Look at California, for one view of American education's problems and opportunities—and for a view of imaginative and daring action, as well.

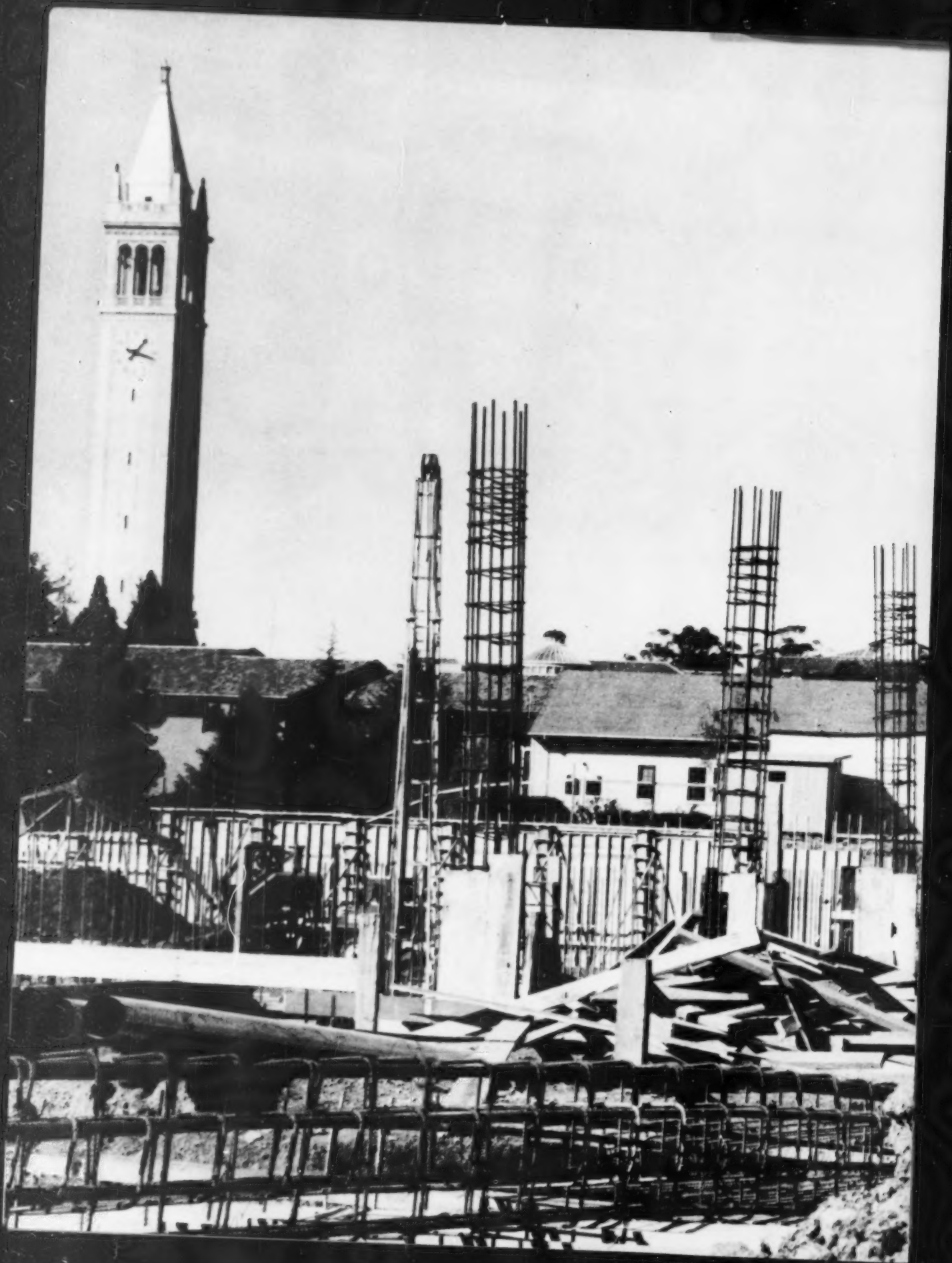
Nowhere is the public appetite for higher education more avid, the need for highly trained men and women more clear, the pressure of population more acute. In a recent four-year period during which the country's population rose 7.5 per cent, California's rose some 17.6 per cent. Californians—with a resoluteness which is, unfortunately, not typical of the nation as a whole—have shown a remarkable determination to face and even to anticipate these facts.

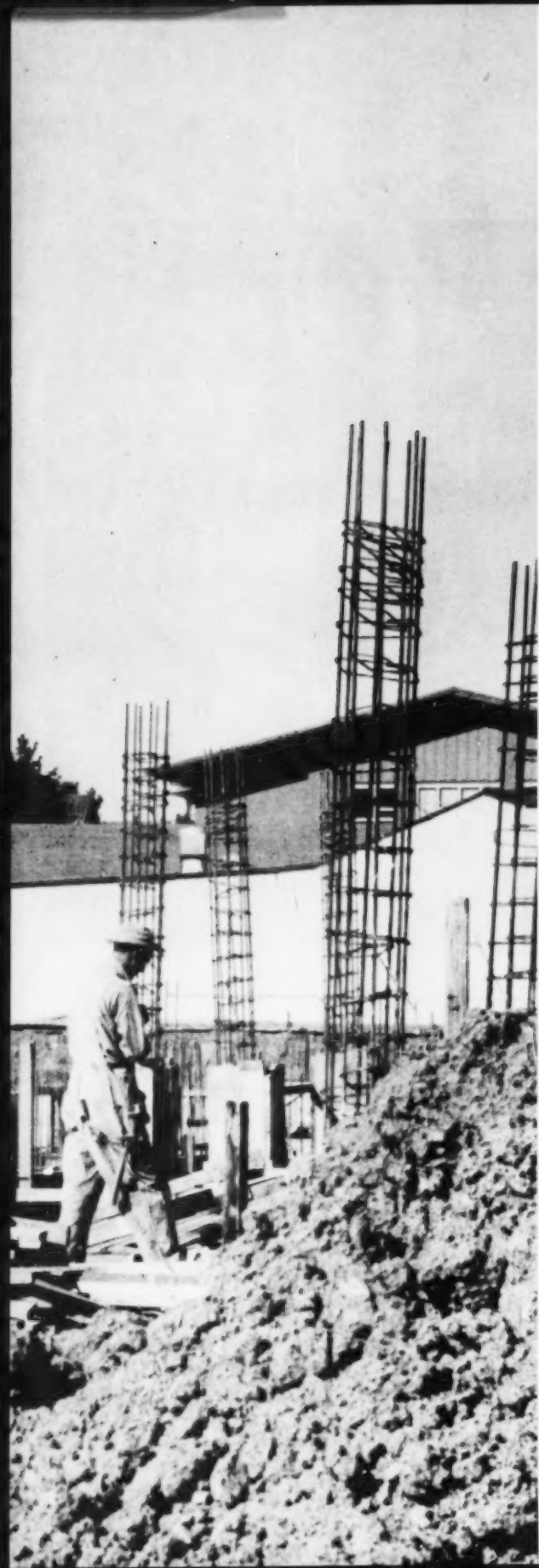
They have decided that the state should build fifteen new junior colleges, thirteen new state colleges, and five new campuses for their university. (Already the state has 135 institutions of higher learning: sixty-three private establishments, sixty-one public junior colleges, ten state colleges, and the University of California with eight campuses. Nearly 40 cents of every tax dollar goes to support education on the state level.)

But California has recognized that providing new facilities is only part of the solution. New philosophies are needed, as well.

The students looking for classrooms, for example, vary tremendously, one from the other, in aptitudes, aims, and abilities. "If higher education is to meet the varied needs of students and also the diverse requirements of an increasingly complex society," a California report says, "there will have to be corresponding diversity among and within educational institutions. . . . It will







UNIVERSITY OF CALIFORNIA

To accommodate more students and to keep pace with increasing demands for complex research work, higher education must spend more on construction this year than in any other year in history.

not be sufficient for California—or any other state, for that matter—simply to provide enough *places* for the students who will seek college admission in future years. It will also have to supply, with reasonable economy and efficiency, a wide range of educational *programs*."

Like all of the country, California and Californians have some big decisions to make.

DR. LEWIS H. CHRISMAN is a professor of English at West Virginia Wesleyan, a Methodist college near the town of Buckhannon. He accepted an appointment there in 1919, when it consisted of just five major buildings and a coeducational student body of 150. One of the main reasons he took the appointment, Dr. Chrisman said later, was that a new library was to be built "right away."

Thirty years later the student body had jumped to 720. Nearly a hundred other students were taking extension and evening courses. The zooming postwar birth rate was already in the census statistics, in West Virginia as elsewhere.

But Dr. Chrisman was still waiting for that library. West Virginia Wesleyan had been plagued with problems. Not a single major building had gone up in thirty-five years. To catch up with its needs, the college would have to spend \$500,000.

For a small college to raise a half million dollars is often as tough as for a state university to obtain perhaps ten times as much, if not tougher. But Wesleyan's president, trustees, faculty, and alumni decided that if independent colleges, including church-related ones, were to be as significant a force in the times ahead as they had been in the past, they must try.

Now West Virginia Wesleyan has an eighty-thousand-volume library, three other buildings completed, a fifth to be ready this spring, and nine more on the agenda.

A group of people reached a hard decision, and then made it work. Dr. Chrisman's hopes have been more than fulfilled.

So it goes, all over America. The U. S. Office of Education recently asked the colleges and universities how much they are spending on new construction this year.



UNIVERSITY OF CALIFORNIA

THE most serious shortage that higher education faces is in its teaching staffs. Many are underpaid, and not enough young people are entering the field. Here, left to right, are a Nobel Prizewinning chemist, a Bible historian, a heart surgeon, a physicist, and a poet.



WEST VIRGINIA WESLEYAN COLLEGE

Ninety per cent of them replied. In calendar 1958, they are spending \$1.078 billion.

Purdue alone has \$37 million worth of construction in process. Penn has embarked on twenty-two projects costing over \$31 million. Wake Forest and Goucher and Colby Colleges, among others, have left their old campuses and moved to brand-new ones. Stanford is undergoing the greatest building boom since its founding. Everywhere in higher education, the bulldozer, advance agent of growth, is working to keep up with America's insatiable, irresistible demands.

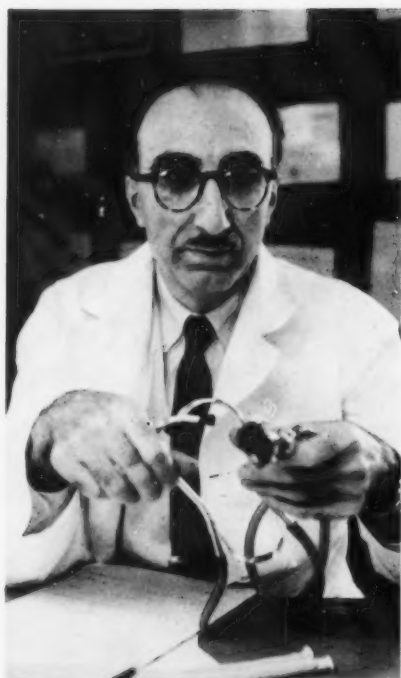
BUILDING PROJECTS, however, are only the outward and visible signs of higher education's effort to stay geared to the times. And in many ways they are the easiest part of the solution to its problems. Others go deeper.

Not long ago the vice president of a large university was wondering aloud. "Perhaps," he said, "we have been thinking that by adding more schools and institutes as more knowledge seemed necessary to the world, we were serving the cause of learning. Many are now calling for a reconsideration of what the whole of the university is trying to *do*."

The problem is a very real one. In the course of her 200-year-plus history, the university had picked up so many schools, institutes, colleges, projects, and "centers" that almost no one man could name them all, much less give an accurate description of their functions. Other institutions are in the same quandary.

Why? One reason is suggested by the vice president's comment. Another is the number of demands which we as a nation have placed upon our institutions of higher learning.

We call upon them to give us space-age weapons and



BAYLOR UNIVERSITY

RENSSELAER POLYTECHNIC INSTITUTE



DARTMOUTH COLLEGE

polio vaccine. We ask them to provide us with lumbermen and liberally educated PTA presidents, doctors and statesmen, business executives and poets, teachers and housewives. We expect the colleges to give us religious training, better fertilizers, extension courses in music appreciation, fresh ideas on city planning, classes in square dancing, an understanding of medieval literature, and basic research.

The nation does need many services, and higher education has never been shy about offering to provide a great portion of them. Now however, in the face of a multitude of pressures ranging from the population surge to the doubts many people have about the quality of American thought, there are those who are wondering if America is not in danger of over-extending its educational resources: if we haven't demanded, and if under the banner of higher education our colleges and universities haven't taken on, too much.

AMERICA has never been as ready to pay for its educational services as it has been to request them. A single statistic underlines the point. We spend about seven tenths of 1 per cent of our gross national product on higher education. (Not that we should look to the Russians to set our standards for us—but it is worth noting that they spend on higher education more than 2 per cent of *their* gross.)

As a result, this spring, many colleges and universities find themselves in a tightening vise. It is not only that prices have skyrocketed; the *real cost* of providing education has risen, too. As knowledge has broadened and deepened, for example, more complicated and costly equipment has become essential.

Feeling the financial squeeze most painfully are the faculty members. The average salary of a college or university teacher in America today is just over \$5,000. The average salary of a full professor is just over \$7,000.

It is a frequent occurrence on college campuses for a graduating senior, nowadays, to be offered a starting salary in industry that is higher than that paid to most of the faculty men who trained him.

On humane grounds alone, the problem is shocking. But it is not limited to a question of humaneness; there is a serious question of national welfare, also.

"Any institution that fails through inability or delinquency to attract and hold its share of the best academic minds of the nation is accepting one of two consequences," says President Cornelis W. de Kiewiet of the University of Rochester. "The first is a sentence of inferiority and decline, indeed an inferiority so much greater and a decline so much more intractable that trustees, alumni, and friends can only react in distress when they finally see the truth. . . .

"The second . . . is the heavy cost of rehabilitation once the damage has been done. In education as in business there is no economy more foolish than poor maintenance and upkeep. Staffs that have been poorly maintained can be rebuilt only at far greater cost. Since even less-qualified and inferior people are going to be in short supply, institutions content to jog along will be denied even the solace of doing a moderate job at a moderate cost. It is going to be disturbingly expensive to do even a bad job."

The effects of mediocrity in college and university teaching, if the country should permit it to come about, could only amount to a national disaster.

WITH the endless squeezes, economies, and crises it is experiencing, it would not be particularly remarkable if American higher education, this spring, were alternately reproaching its neglecters and struggling feebly against a desperate fate. By and large, it is doing nothing of the sort.

Instead, higher education is moving out to meet its problems and, even more significantly, looking beyond them. Its plans take into account that it may have twice as many students by 1970. It recognizes that it must not, in this struggle to accommodate quantity, lose sight of quality or turn into a molder of "mass minds." It is continuing to search for ways to improve its present teaching. It is charting new services to local communities, the nation, and vast constituencies overseas. It is entering new areas of research, so revolutionary that it must invent new names for them.

CONSIDER the question of maintaining quality amidst quantity. "How," educators ask themselves, "can you educate everyone who is ambi-

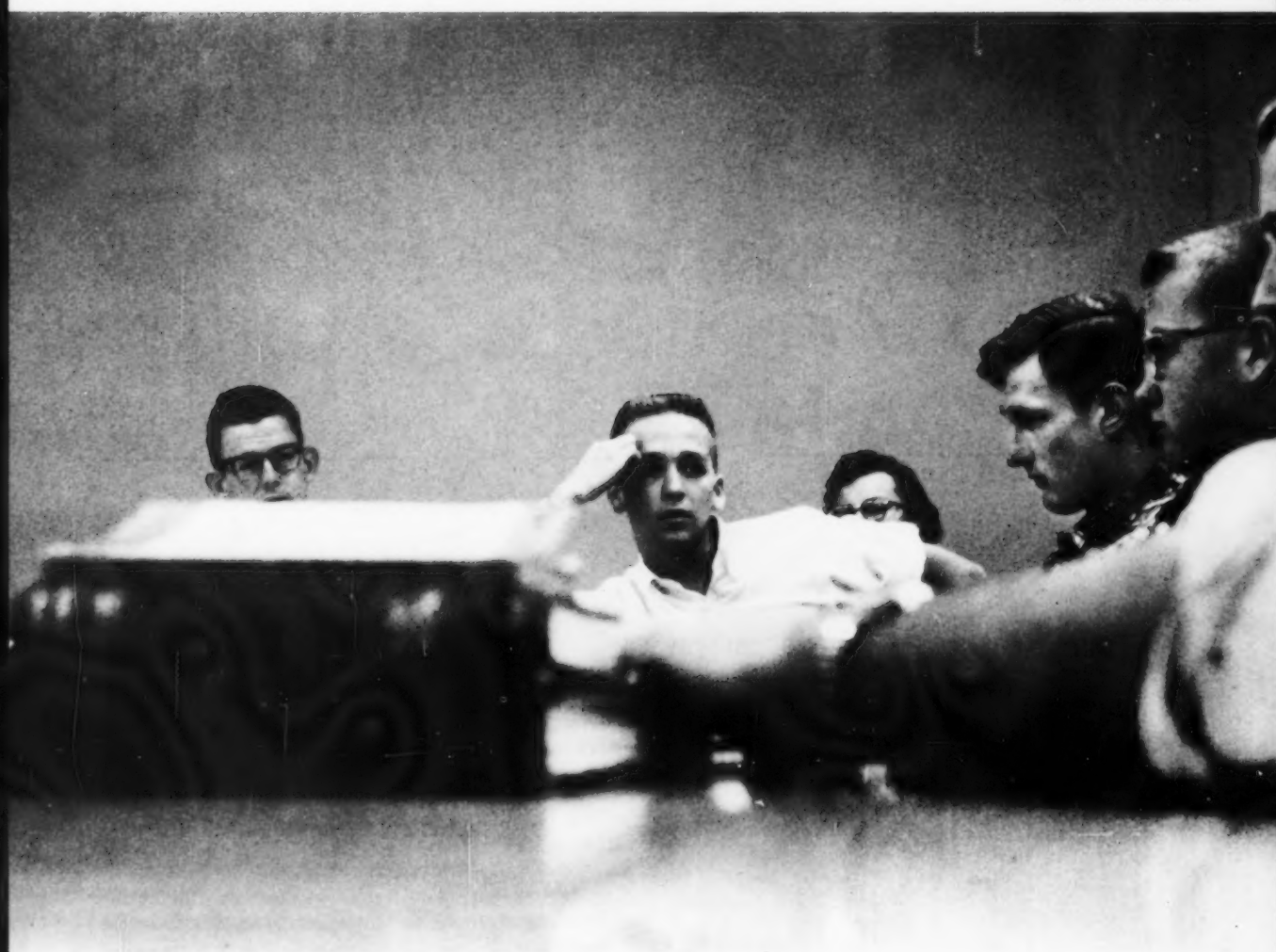
EXCEPTIONAL students must not be overlooked, especially in a time when America needs to educate every outstanding man and woman to fullest capacity. The students at the right are in a philosophy of science class.

tious and has the basic qualifications, and still have time, teachers, and money to spend on the unusual boy or girl? Are we being true to our belief in the individual if we put everyone into the same mold, ignoring human differences? Besides, let's be practical about it: doesn't this country need to develop every genius it has?"

There is one approach to the problem at an institution in eastern California, Deep Springs. The best way to get there is to go to Reno, Nevada, and then drive about five hours through the Sierras to a place called Big Pine. Deep Springs has four faculty members, is well endowed, selects its students carefully, and charges no tuition or fees. It cannot lose sight of its good students: its total enrollment is nineteen.

At another extreme, some institutions have had to





devote their time and effort to training as many people as possible. The student with unusual talent has had to find it and develop it without help.

Other institutions are looking for the solution somewhere in between.


The University of Kansas, for example, like many other state universities, is legally bound to accept every graduate of an accredited state high school who applies, without examinations or other entrance requirements. "Until recently," says Dean George Waggoner of Kansas's College of Liberal Arts and Sciences, "many of us spent a great deal of our time trying to solve the problem of marginal students."

In the fall of 1955, the university announced a program designed especially for the "gifted student." Its

objective: to make sure that exceptional young men and women would not be overlooked or under-exposed in a time of great student population and limited faculty.

Now Kansas uses state-wide examinations to spot these exceptional high-school boys and girls early. It invites high-school principals to nominate candidates for scholarships from the upper 5 per cent of their senior classes. It brings the promising high-school students to its Lawrence campus for further testing, screening, and selection.

When they arrive at the university as freshmen, the students find themselves in touch with a special faculty committee. It has the power to waive many academic rules for them. They are allowed to take as large a bite of education as they can swallow, and the usual course



EVEN in institutions with thousands of students, young people with extraordinary talents can be spotted and developed. This teacher is leading an honors section at a big university.

prerequisites do not apply; they may enter junior and senior-level courses if they can handle the work. They use the library with the same status as faculty members and graduate students, and some serve as short-term research associates for professors.

The force of the program has been felt beyond the students and the faculty members who are immediately involved. It has sent a current throughout the College of Liberal Arts and Sciences. All students on the dean's honor roll, for example, no longer face a strict limit in the number of courses they may take. Departments have strengthened their honor sections or, in some cases, established them for the first time. The value of the program reaches down into the high schools, too, stimulating teachers and attracting to the university strong students who might otherwise be lost to Kansas.

Across the country, there has been an attack on the problem of the bright student's boredom during his early months in college. (Too often he can do nothing but fidget restlessly as teachers gear their courses to students less talented than he.) Now, significantly large numbers are being admitted to college before they have finished high school; experiments with new curricula and opportunities for small discussion groups, fresh focus, and independent study are found in many schools. Foundations, so influential in many areas of higher education today, are giving their support.



The "quality vs. quantity" issue has other ramifications. "Education's problem of the future," says President Eldon L. Johnson of the University of New Hampshire, "is the relation of mind and mass. . . . The challenge is to reach numbers without mass treatment and the creation of mass men. . . . It is in this setting and this philosophy that the state university finds its place."

And, one might add, the independent institution as well. For the old idea that the public school is concerned with quantity and the private school with quality is a false one. All of American higher education, in its diversity, must meet the twin needs of extraordinary persons and a better educated, more thoughtful citizenry.

WHAT is a better educated, more thoughtful citizenry? And how do we get one? If America's colleges and universities thought they had the perfect answers, a pleasant complacency might spread across the land.

In the offices of those who are responsible for laying out programs of education, however, there is anything but complacency. Ever since they stopped being content with a simple curriculum of theology, philosophy, Latin, Greek, and math, the colleges and universities have been searching for better ways of educating their students in breadth as well as depth. And they are still hunting.

Take the efforts at Amherst, as an example of what many are doing. Since its founding Amherst has developed and refined its curriculum constantly. Once it offered a free elective system: students chose the courses they wanted. Next it tried specialization: students selected a major field of study in their last two years. Next, to make sure that they got at least a taste of many different fields, Amherst worked out a system for balancing the elective courses that its students were permitted to select.

But by World War II, even this last refinement seemed inadequate. Amherst began—again—a re-evaluation.

When the self-testing was over, Amherst's students began taking three sets of required courses in their freshman and sophomore years: one each in science, history, and the humanities. The courses were designed to build the groundwork for responsible lives: they sought to help students form an integrated picture of civilization's issues and processes. (But they were not "surveys"—or what Philosophy Professor Gail Kennedy, chairman of the faculty committee that developed the program, calls "those superficial omnibus affairs.")

How did the student body react? Angrily. When Professor Arnold B. Arons first gave his course in physical science and mathematics, a wave of resentment arose. It culminated at a mid-year dance. The music stopped, conversations ceased, and the students observed a solemn, two-minute silence. They called it a "Hate Arons Silence."

But at the end of the year they gave the professor a standing ovation. He had been rough. He had not provided his students with pat answers. He had forced them to think, and it had been a shock at first. But as they got used to it, the students found that thinking, among all of life's experiences, can sometimes be the most exhilarating.

TO TEACH them to think: that is the problem. It is impossible, today, for any school, undergraduate or professional, to equip its students with all the knowledge they will need to become competent engineers, doctors, farmers, or business men. On the other hand, it can provide its students with a chance to discover something with which, on their own, they can live an extraordinary life: their ability to think.

THUS, in the midst of its planning for swollen enrollments, enlarged campuses, balanced budgets, and faculty-procurement crises, higher education gives deep thought to the effectiveness of its programs. When the swollen enrollments do come and the shortage of teachers does become acute, higher education hopes it can maintain its vitality.

BAYLOR UNIVERSITY



TO IMPROVE the effectiveness of their teaching, colleges and universities are experimenting with new techniques like recordings of plays (*above*) and television, which (*left*) can bring medical students a closeup view of delicate experiments.



HARVARD UNIVERSITY

To stretch teaching resources without sacrificing (and, perhaps, even improving) their effectiveness, it is exploring such new techniques as microfilms, movies, and television. At Rensselaer Polytechnic Institute, in Troy, New York, the exploration is unusually intense.

RPI calls its concerted study "Project Reward." How good, Project Reward asks, are movies, audio-visual aids, closed-circuit television? How can we set up really effective demonstrations in our science courses? How much more effective, if at all, is a small class than a big one? Which is better: lecture or discussion groups? Says Roland H. Trathen, associate head of Rensselaer's department of mechanics and a leader in the Project Reward enterprise, when he is asked about the future, "If creative contributions to teaching are recognized and rewarded in the same manner as creative contributions to research, we have nothing to fear."

The showman in a good professor comes to the fore when he is offered that new but dangerous tool of communication, television. Like many gadgets, television can be used merely to grind out more degree-holders, or—in the hands of imaginative, dedicated teachers—it can be a powerful instrument for improvement.

Experiments with television are going on all over the place. A man at the University of Oregon, this spring, can teach a course simultaneously on his own campus and three others in the state, thanks to an electronic link. Pennsylvania State experimented with the medium for three years and discovered that in some cases the TV students did better than their counterparts who saw their instructors in the flesh.

The dangers in assembly-line education are real. But with new knowledge about how people actually learn—and new devices to *help* them learn—interesting possibilities appear.

Even so, some institutions may cling to time-worn notions about teaching until they are torn loose by the current of the age. Others may adulterate the quality of their product by rushing into short-cut schemes. The reader can hope that his college, at least, will use the new tools wisely: with courage yet with caution. Most of all, he can hope that it will not be forced into adopting them in desperation, because of poverty or its inability to hold good teachers, but from a position of confidence and strength.

AERICAN higher education does not limit itself to college campuses or the basic function of educating the young. It has assumed responsibility for direct, active, specific community service, also.

"Democracy's Growing Edge," the Teacher's College

of the University of Nebraska calls one such service project. Its sponsors are convinced that one of the basic functions of local schools is to improve their communities, and they are working through the local boards of education in Nebraska towns to demonstrate it.

Consider Mullen (pop. 750), in northwest Nebraska's sandhills area, the only town in its cattle-ranching county. The nearest hospital is ninety miles away. Mullen needs its own clinic; one was started six years ago, only to bog down. Under the university's auspices, with Mullen's school board coordinating the project and the Teacher's College furnishing a full-time associate coordinator, the citizens went to work. Mullen now has its clinical facilities.

Or consider Syracuse, in the southeast corner of the state, a trading center for some three thousand persons. It is concerned about its future because its young people are migrating to neighboring Lincoln and Omaha; to hold them, Syracuse needs new industry and recreational facilities. Again, through the university's program, townspeople have taken action, voting for a power contract that will assure sufficient electricity to attract industry and provide opportunities for youth.

Many other institutions currently are offering a variety



of community projects—as many as seventy-eight at one state university this spring. Some samples:

The University of Dayton has tailored its research program to the needs of local industry and offers training programs for management. Ohio State has planted the nation's first poison plant garden to find out why some plants are poisonous to livestock when grown in some soils yet harmless in others. Northwestern's study of traffic problems has grown into a new transportation center. The University of Southern California encourages able high-school students to work in its scientific laboratories in the summer. Regis College runs a series of economics seminars for Boston professional women.

Community service takes the form of late-afternoon and evening colleges, also, which offer courses to school teachers and business men. Television is in the picture, too. Thousands of New Yorkers, for example, rise before dawn to catch New York University's "Sunrise Semester," a stiff and stimulating series of courses on WCBS-TV.

In California, San Bernardino Valley College has gone on radio. One night a week, members of more than seventy-five discussion groups gather in private homes and turn on their sets. For a half hour, they listen to a program

such as "Great Men and Great Issues" or "The Ways of Mankind," a study of anthropology.

When the program is over (it is then 8:30), the living-room discussions start. People talk, argue, raise questions—and learn. One thousand of them are hard at it, all over the San Bernardino Valley area.

Then, at ten o'clock, they turn on the radio again. A panel of experts is on. Members of the discussion groups pick up their phones and ask questions about the night's topic. The panel gives its answers over the air.

Says one participant, "I learned that people who once seemed dull, uninteresting, and pedestrian had exciting things to say if I would keep my mouth shut and let them say it."

When it thinks of community services, American higher education does not limit itself to its own back yard.

Behind the new agricultural chemistry building at the University of the Philippines stand bare concrete columns which support nothing. The jungle has grown up around their bases. But you can still see the remains of buildings which once housed one of the most distinguished agricultural schools in the Far East, the university's College of Agriculture. When Filipinos returned to the campus after World War II, they found virtually nothing.

The needs of the Philippines' devastated lands for trained men were clear and immediate. The faculty began to put the broken pieces back together again, but it was plain that the rebuilding would take decades.

In 1952, Cornell University's New York State College of Agriculture formed a partnership with them. The objective: to help the Filipinos rebuild, not in a couple of generations, but in a few years. Twelve top faculty members from Cornell have spent a year or more as regular members of the staff. Filipinos have gone to New York to take part in programs there.

Now, Philippine agriculture has a new lease on life—and Filipinos say that the Cornell partnership should receive much of the credit. Farms are at last big enough to support their tenants. Weeds and insects are being brought under control. Grassland yields are up. And the college enrollment has leaped from little more than a hundred in 1945 to more than four thousand today.

In Peru, the North Carolina College of Agriculture and Engineering is helping to strengthen the country's agricultural research; North Carolina State College is

UNIVERSITY OF OKLAHOMA



IN ADDITION to teaching and conducting research, America's colleges and universities offer a wide range of community services. At the left are hundreds of curriculum materials available at one state university.



NONE of its services can function effectively unless higher education remains free. Freedom to pursue knowledge is the strongest attraction of college and university teaching.

helping to develop Peruvian research in textiles; and the University of North Carolina co-operates in a program of technical assistance in sanitary engineering. In Liberia, Prairie View A. and M. College of Texas (the Negro college of the Texas A. and M. system) is working with the Booker Washington Agricultural and Industrial Institute to expand vocational education. Syracuse University is producing audio-visual aids for the Middle East, particularly Iran. The University of Tennessee is providing home-economics specialists to assist in training similar specialists in India. The University of Oregon is working with Nepal in establishing an educational system where none existed before (only eleven persons in the entire country of 8.5 million had had any professional training in education). Harvard is providing technical advice and assistance to Latin American countries in developing and maintaining nutrition programs.

THUS emerges a picture of American higher education, 1958. Its diversity, its hope that it can handle large numbers of students without losing sight of quality in the process, its willingness to extend its services far beyond its classrooms and even its home towns: all these things are true of America's colleges and universities today. They can be seen.

But not as visible, like a subsurface flaw in the earth's apparently solid crust, lie some facts that may alter the landscape considerably. Not enough young people, for instance, are currently working their way through the long process of preparation to become college and university teachers. Others, who had already embarked on faculty careers, are leaving the profession. Scholars and teachers are becoming one of the American economy's scarcest commodities.

Salary scales, as described earlier in this article, are largely responsible for the scarcity, but not entirely.

Three faculty members at the University of Oklahoma sat around a table not long ago and tried to explain why they are staying where they are. All are young. All are brilliant men who have turned down lucrative jobs in business or industry. All have been offered higher-paying posts at other universities.



UNIVERSITY OF CALIFORNIA



EVERYWHERE—in business, government, the professions, the arts—college graduates are in demand. Thus society pays tribute to the college teacher. It relies upon him today as never before.

"It's the atmosphere, call it the teaching climate, that keeps me here," said one.

"Teachers want to know they are appreciated, that their ideas have a chance," said another. "I suppose you might say we like being a part of our institution, not members of a manpower pool."

"Oklahoma has made a real effort to provide an opportunity for our opinions to count," said the third. "Our advice may be asked on anything from hiring a new professor to suggesting salary increases."

The University of Oklahoma, like many other institutions but *unlike* many more, has a self-governing faculty. "The by-products of the university government," says Oklahoma's Professor Cortez A. M. Ewing, "may prove to be its most important feature. In spite of untoward conditions—heavy teaching loads, low salaries, and marginal physical and laboratory resources, to mention a few—the spirit of co-operation is exceeded only by the dedication of the faculty."

The professor worth his title *must* be free. He must be free to explore and probe and investigate. He must be free to pursue the truth, wherever the chase may take him. This, if the bread-and-butter necessities of salary scales can be met, is and will always be the great attraction of college and university teaching. We must take care that nothing be allowed to diminish it.

GONE is the old caricature of the absent-minded, impractical academician. The image of the college professor has changed, just as the image of the college boy and the college alumna has changed. If fifty years ago a college graduate had to apologize for his education and even conceal it as he entered the business world, he does so no longer. Today society demands the educated man. Thus society gives its indirect respect to the man who taught him, and links a new reliance with that respect.

It is more than need which warrants this esteem and reliance. The professor is aware of his world and travels to its coldest, remotest corners to learn more about it. Nor does he overlook the pressing matters at the very edge of his campus. He takes part in the International Geophysical Year's study of the universe; he attacks the cancer in the human body and the human spirit; he nourishes the art of living more readily than the art of killing; he is the frontiersman everywhere. He builds and masters the most modern of tools from the cyclotron to the mechanical brain. He remembers the artist and the philosopher above the clamor of the machine.

The professor still has the color that his students recall,



and he still gets his applause in the spring at the end of an inspiring semester or at the end of a dedicated career. But today there is a difference. It is on him that the nation depends more than ever. On him the free world relies—just as the enslaved world does, too.

DR. SELMAN A. WAKSMAN of Rutgers was not interested in a specific, useful topic. Rather, he was fascinated by the organisms that live in a spadeful of dirt.

A Russian emigrant, born in a thatched house in Priluka, ninety miles from the civilization of Kiev, he came to the United States at the age of seventeen and enrolled in Rutgers. Early in his undergraduate career he became interested in the fundamental aspects of living systems. And, as a student of the College of Agriculture, he looked to the soil. For his senior project he dug a number of trenches on the college farm and took soil samples in order to count the different colonies of bacteria.

But when he examined the samples under his microscope, Waksman saw some strange colonies, different from either bacteria or fungi. One of his professors said they were only "higher bacteria." Another, however, identified them as little-known organisms usually called actinomycetes.

Waksman was graduated in 1915. As a research assistant in soil bacteriology, he began working toward a master's degree. But he soon began to devote more and more time to soil fungi and the strange actinomycetes. He was forever testing soils, isolating cultures, transferring cultures, examining cultures, weighing, analyzing.

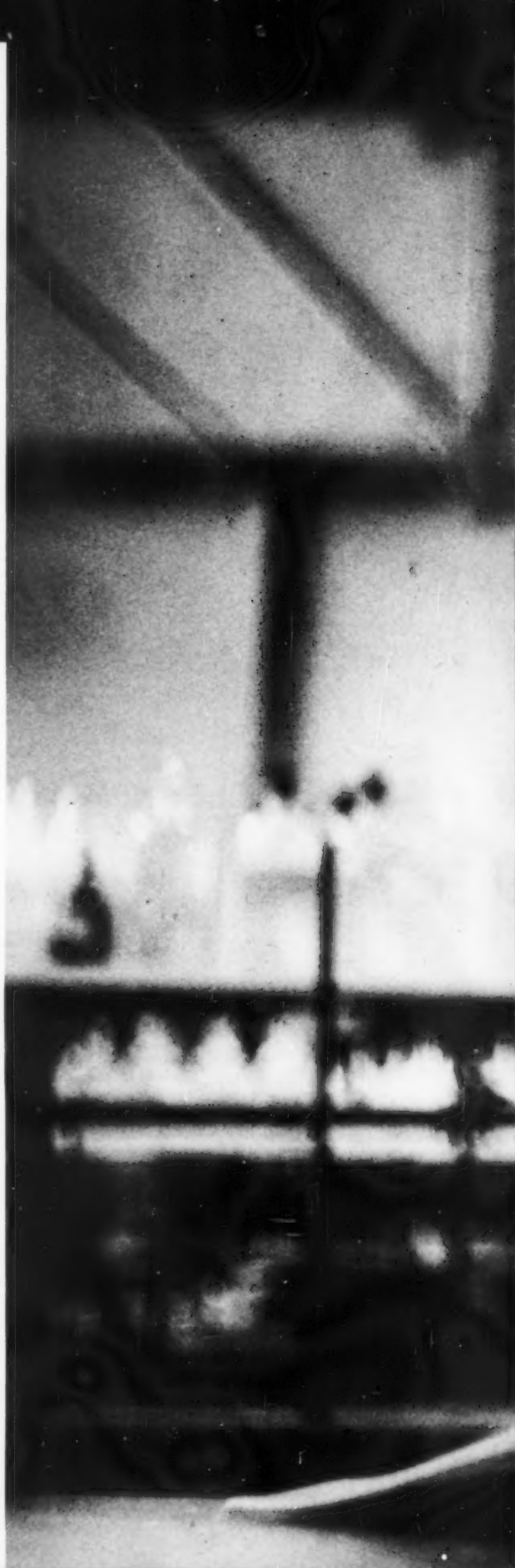
Studying for his Ph.D. at the University of California, he made one finding that interested him particularly. Several groups of microbes appeared to live in harmony, while others fed on their fellows or otherwise inhibited their growth. In 1918 Waksman returned to Rutgers as a microbiologist, to continue his research and teaching.

RUTGERS UNIVERSITY



SOME research by faculty members strikes people as "pointless." It was one such pointless project that led Dr. Selman A. Waksman (*left*) to find streptomycin. Good basic research is a continuing need.

OHIO STATE UNIVERSITY





In 1923 one of his pupils, Rene Dubos, isolated tyrothricin and demonstrated that chemical substances from microbes found in the soil can kill disease-producing germs. In 1932 Waksman studied the fate of tuberculosis bacteria in the soil. In 1937 he published three papers on antagonistic relations among soil micro-organisms. He needed only a nudge to make him turn all his attention to what he was later to call "antibiotics."

The war provided that nudge. Waksman organized his laboratory staff for the campaign. He soon decided to focus on the organisms he had first met as an undergraduate almost thirty years before, the actinomycetes. The first antibiotic substance to be isolated was called actinomycin, but it was so toxic that it could have no clinical application; other antibiotics turned out to be the same. It was not until the summer of 1943 that the breakthrough came.

One day a soil sample from a heavily manured field was brought into the laboratory. The workers processed it as they had processed thousands of others before. But this culture showed remarkable antagonism to disease-producing bacteria. It was a strain—*streptomyces griseus*—that Waksman had puzzled over as a student. Clinical tests proved its effectiveness against some forms of pneumonia, gonorrhea, dysentery, whooping cough, syphilis, and, most spectacularly, TB.

Streptomycin went into production quickly. Along with the many other antibiotics that came from the soil, it was labeled a "miracle drug." Waksman received the Nobel Prize and the heartfelt praise of millions throughout the world.

In a sense, discoveries like Dr. Waksman's are accidents; they are unplanned and unprogrammed. They emerge from scholarly activity which, judged by appearances or practical yardsticks, is aimless. But mankind has had enough experience with such accidents to have learned, by now, that "pure research"—the pursuit of knowledge for the sake of knowledge alone—is its best assurance that accidents will continue to happen. When Chicago's still-active Emeritus Professor Herman Schlesinger got curious about the chemical linkage in a rare and explosive gas called diobrane, he took the first steps toward the development of a new kind of jet and rocket fuel—accidentally. When scientists at Harvard worked on the fractionization of blood, they were accidentally making possible the development of a substitute for whole blood which was so desperately needed in World War II.

But what about the University of Texas's Humanities Research Center, set up to integrate experiments in linguistics, criticism, and other fields? Or the Missouri expedition to Cyprus which excavated an Early-Bronze-



TO FIND the most promising young people of America and then provide them with exceptional educational opportunities: that is the challenge. Above, medical school professors vote on a candidate.



BAYLOR UNIVERSITY

Age site at Episkopi three years ago and is planning to go back again this year? Or the research on folk ballads at the University of Arkansas? In an age of ICBM's, what is the value of this work?

If there is more to human destiny than easing our toils or enriching our pocketbooks, then such work is important. Whatever adds to man's knowledge will inevitably add to his stature, as well. To make sure that higher education can keep providing the opportunities for such research is one of 1958 man's best guarantees that human life will not sink to meaninglessness.

ALFRID NORTH WHITEHEAD once said, "In the conditions of modern life, the rule is absolute: the race which does not value trained intelligence is doomed."

In recent months, the American people have begun to re-learn the truth of Whitehead's statement. For years the nation has taken trained intelligence for granted—or, worse, sometimes shown contempt for it, or denied the conditions under which trained intelligence might flourish. That millions are now recognizing the mistake—and recognizing it before it is too late—is fortunate.

Knowing how to solve the problem, however, and knowing how to provide the *means* for solution, is more difficult.

But again America is fortunate. There is, among us, a group who not only have been ahead of the general public in recognizing the problem but who also have the understanding and the power, *now*, to solve it. That group is the college alumni and alumnae.

Years ago Dr. Hu Shih, the scholar who was then Chinese ambassador to the United States, said America's greatest contribution to education was its revolutionary concept of the *alumnus*: its concept of the former student as an understanding, responsible partner and champion.

Today, this partner and champion of American higher education has an opportunity for service unparalleled in our history. He recognizes, better than anyone, the essential truth in the statement to which millions, finally, now subscribe: that upon higher education depends, in large part, our society's physical and intellectual survival. He recognizes, better than anyone else, the truth in the statement that the race can attain even loftier goals ahead, by strengthening our system of higher education in all its parts. As an *alumnus*—first by understanding, and then by exercising his leadership—he holds within his own grasp the means of doing so.

Rarely has one group in our society—indeed, every member of the group—had the opportunity and the ability for such high service.



EDUCATION of high quality for as many as are qualified for it has been a cherished American dream. Today we are too close to realizing that dream not to intensify our striving for it.



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